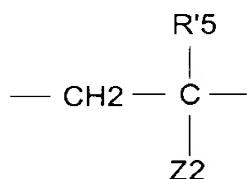


where R5 is H or CH3, and Z1 is COOH or CONH2 or CONHR1SO3, or CONHR"1, R"1 is CH3;

- Hb has the following form:



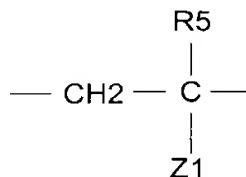
where R'5 is H or CH3 and Z2 is COOR7, COOR'1, CONR1R'1 or CONR1R7, R7 being a non-ionic surfactant consisting of an alkyl polyoxyethylene chain, R1 is H or a C1-C30 alkyl, aryl or alkyl-aryl radical, and R'1 is a C9-C30 alkyl, aryl or alkyl-aryl radical,

wherein said polymer has a molecular mass ranging between 500000 and 10^7 daltons.

3) (three times amended) A slurry as claimed in Claim 1, wherein the polymer with hydrophilic (Hy) and hydrophobic (Hb) units is HMPAM, where R5 is H and Z1 is CONH2, R'5=CH3 and Z2 is COOR'1 with R'1=C9H19.

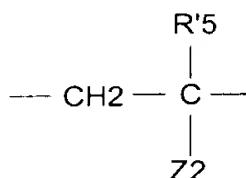
5) (amended) A slurry as claimed in claim 3, wherein the slurry further contains a polymer selected from the group consisting of an unbranched polymer S1 and a

branched polymer S2, wherein S1 and S2 are each made up of units of



C4

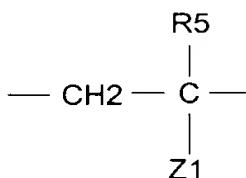
and



with a statistical distribution, wherein R5 is H and Z1 is CONH2, R'5=H and Z2 is C6H4SO3H.

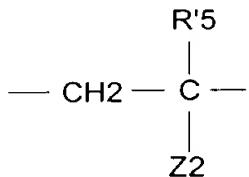
8) (amended) A cement slurry intended to be set in a wellbore through at least one geologic formation having a certain permeability, characterized in that it comprises cement, at least one mineral filler, water and a determined amount of at least one polymer with hydrophilic (Hy) and hydrophobic (Hb) units in aqueous solution, said polymer having the following structure: —(Hb)—(Hy)— with a statistical distribution, and:

- Hy has the following form:



CS
where R5 is H or CH3, and Z1 is COOH or CONH2 or CONHR1SO3, or CONHR"1, R"1 is CH3;

- Hb has the following form:



where R'5 is H or CH3 and Z2 is COOR7, COOR'1, CONR1R'1 or CONR1R7, R7 being a non-ionic surfactant consisting of an alkyl polyoxyethylene chain, R1 is H or a C1-C30 alkyl, aryl or alkyl-aryl radical, and R' 1 is a C1-C30 alkyl, aryl or alkyl-aryl radical,

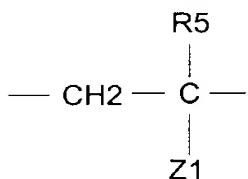
wherein the mineral filler consists of silica whose grain size ranges between 5 and 200 μm and microsilica whose grain size ranges between 0.1 and 20 μm and a small water content of 30 cc for 144 g of solids (cement, silica and microsilica).

Please add the following new Claims 11 - 19:

11) A method for cementing a well bore drilled through at least one geological formation having a certain permeability, said method comprising setting a cement slurry in the well, where the cement slurry comprises cement, at least one mineral filler, water and a determined amount of at least one polymer with hydrophilic (Hy) and hydrophobic (Hb) units in aqueous solution, said polymer having the following structure: —(Hb)—(Hy)— with a statistical distribution,

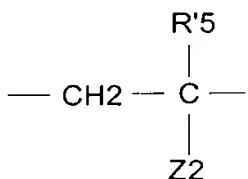
and:

- Hy has the following form:



where $\text{R}5$ is H or CH_3 , and $Z1$ is COOH or CONH_2 or $\text{CONHR}1\text{SO}_3$, or CONHR''1 , R''1 is CH_3 ;

- Hb has the following form:



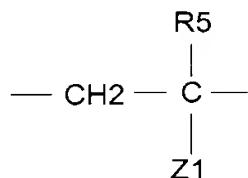
where $\text{R}'5$ is H or CH_3 and $Z2$ is $\text{COOR}7$, $\text{COOR}'1$, $\text{CONR}1\text{R}'1$ or $\text{CONR}1\text{R}7$, $\text{R}7$ being a non-ionic surfactant consisting of an alkyl polyoxyethylene chain, $\text{R}1$ is H or a C1-C30 alkyl, aryl or alkyl-aryl radical, and $\text{R}'1$ is a C9-C30 alkyl, aryl or alkyl-aryl radical.

12) The method of claim 11, wherein the polymer has a proportion of hydrophobic units Hb ranging between 0.5 and 60 %.

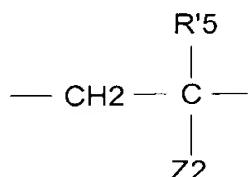
13) The method of Claim 11 wherein the polymer with hydrophilic (Hy) and hydrophobic (Hb) units is HMPAM, where $\text{R}5$ is H and $Z1$ is CONH_2 , $\text{R}'5=\text{CH}_3$ and $Z2$ is $\text{COOR}'1$ with $\text{R}'1=\text{C}_9\text{H}_{19}$.

14) The method of Claim 11 wherein the mineral filler consists of silica with a grain size ranging between consisting of silica with grain size ranges between 5 and 200 μm , and microsilica with a grain size ranging between 0.1 and 20 μm .

15) The method of Claim 13, wherein the slurry further contains a polymer selected from the group consisting of an unbranched polymer S1 and a branched polymer S2, wherein S1 and S2 are each made up of units of



and



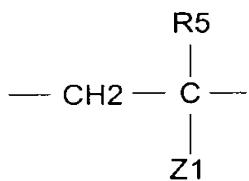
with a statistical distribution, wherein R5 is H and Z1 is CONH2, R'5=H and Z2 is C6H4SO3H.

16) The method of Claim 11 wherein said polymer has a molecular weight ranging between 500000 and 10^7 daltons.

17) A cement slurry intended to be set in a wellbore through at least one geologic formation having a certain permeability, characterized in that it

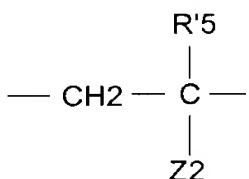
comprises cement, at least one mineral filler, water and a determined amount of at least one polymer with hydrophilic (Hy) and hydrophobic (Hb) units in aqueous solution, said polymer having the following structure: —(Hb)—(Hy)— with a statistical distribution, and:

- Hy has the following form:



where R₅ is H or CH₃, and Z₁ is COOH or CONH₂ or CONHR₁SO₃, or CONHR''₁, R''₁ is CH₃;

- Hb has the following form:



where R'5 is H or CH₃ and Z₂ is COOR₇, COOR'1, CONR₁R'1 or CONR₁R₇, R₇ being a non-ionic surfactant consisting of an alkyl polyoxyethylene chain, R₁ is H or a C₁-C₃₀ alkyl, aryl or alkyl-aryl radical, and R'1 is a C₁-C₃₀ alkyl, aryl or alkyl-aryl radical,

wherein the mineral filler consists of silica whose grain size ranges between 5 and 200 μm and microsilica whose grain size ranges between 0.1 and 20 μm and a small water content of 30 cc for 144 g of solids (cement, silica and microsilica).

C6

- 18) A slurry as claimed in Claim 17, wherein the polymer is Hb1 where R5 is H, Z1 is COOH, R'5 is H and Z2 is COOR'1 with R'1 being C4, comprising about 80% of (hy) units, and of molecular mass ranging between 10^4 and $5 \cdot 10^4$.
- 19) A slurry as claimed in claim 18, wherein said polymer is Hb1 at a concentration ranging between 0.5 and 5 % by weight.